

WHAT IS CLAIMED IS:

1. An optical film comprising a layer containing layered clay particles in a radiation cured binder.
2. The optical film of claim 1 wherein the radiation cured binder comprises polyfunctional acrylic compounds derived from polyhydric alcohols.
3. The optical film of claim 2 wherein the radiation cured binder comprises a repeating group selected from ethoxylated trimethylolpropane tri(meth)acrylate, tripropylene glycol di(meth)acrylate, trimethylolpropane tri(meth)acrylate, diethylene glycol di(meth)acrylate, pentaerythritol tetra(meth)acrylate, pentaerythritol tri(meth)acrylate, dipentaerythritol hexa(meth)acrylate, 1,6-hexanediol di(meth)acrylate, and neopentyl glycol di(meth)acrylate.
4. The optical film of claim 2 wherein the radiation cured binder comprises a repeating group selected from pentaerythritol tetra(meth)acrylate and pentaerythritol tri(meth)acrylate.
5. The optical film of claim 1 wherein the radiation cured binder comprises acrylate and methacrylate oligomers derived from low-molecular weight polyester resin, polyether resin, acrylic resin, epoxy resin, polyurethane resin.
6. The optical film of claim 1 wherein the radiation cured binder comprises a urethane acrylate compound.
7. The optical film of claim 1 wherein the radiation cured binder comprises an aliphatic urethane acrylate derived from isophorone diisocyanate.

8. The optical film of claim 1 wherein the radiation cured binder comprises a polyurethane acrylate derived from an aliphatic polyester polyol.
9. The optical film of claim 1 wherein the particles comprise layered organically modified clay particles.
10. The optical film of claim 1 wherein the particles have an average size of between 1 and 10 micrometers.
11. The optical film of claim 1 wherein said particles are present in at least 2% by weight of the layer.
12. The optical film of claim 1 wherein said particles are present in an amount of less than 50% by weight of the layer.
13. The optical film of claim 1 wherein the amount of the clay is sufficient to provide a gloss less than 100.
14. The optical film of claim 1 wherein the amount of the clay is sufficient to provide a gloss less than 80.
15. The optical film of claim 1 wherein the amount of the clay is sufficient to provide a gloss less than 60.
16. The optical film of claim 1 wherein the amount of the clay is sufficient to provide a haze less than 30.
17. The optical film of claim 1 wherein the amount of the clay is sufficient to provide a haze less than 20.

18. The optical film of claim 1 wherein the amount of the clay is sufficient to provide a haze less than 15.
19. The optical film of claim 14 wherein the amount of the clay is sufficient to provide a haze less than 20.
20. The optical film of claim 1 additionally containing a silicone acrylate lubricant.
21. The optical film of claim 13 wherein the silicone acrylate lubricant is a methacryloxy-functional silicone polyether copolymer.
22. The optical film of claim 1 wherein said film is deposited upon a transparent polymeric support.
23. The optical film of claim 22 wherein said support is selected from the group consisting of triacetyl cellulose, polyethylene terephthalate, diacetyl cellulose, acetate butyrate cellulose, acetate propionate cellulose, polyether sulfone, polyacrylic based resins, polyurethane based resin, polyester, polycarbonate, aromatic polyamide, polyolefins, polymers derived from vinyl chloride, polyvinyl alcohol, polysulfone, polyether, polynorbornene, polymethylpentene, polyether ketone, and (meth)acrylonitrile.
24. The optical film of claim 22 wherein said support is triacetyl cellulose.
25. The optical film of claim 1 wherein the total light transmission is greater than 90 percent.

26. The optical film of claim 1 comprising a layer containing a radiation cured binder derived from a mixture of (meth)acrylate derivatives of pentaerythritol functionalized aliphatic urethanes.

27. The optical film of claim 26 wherein the mixture comprises pentaerythritol tetra(meth)acrylate and pentaerythritol tri(meth)acrylate functionalized aliphatic urethanes.

28. The optical film of claim 1 comprising a layer containing a radiation cured binder derived from isophorone diisocyanate.

29. A coating dispersion comprising a radiation curable urethane acrylate oligomer, layered clay particles, a radiation sensitive curing agent, and an organic solvent.

30. The dispersion of claim 29 wherein the clay is organically modified.

31. The coating dispersion of claim 29 wherein said organic solvent comprises an ester solvent and an aromatic hydrocarbon.

32. The coating dispersion of claim 29 wherein said the radiation sensitive curing agent comprises a UV sensitive curing initiator.

33. A method of forming an optical film comprising providing a flexible transparent polymeric support, applying to the support a coating of radiation curable binder comprising polyfunctional acrylic compounds, layered clay particles in an organic solvent, and radiation curing the said coating to form a layer.

34. The method of claim 33 wherein the coating additionally contains a silicone acrylate.

35. The method of claim 33 wherein the radiation curable binder comprises a repeating group selected from ethoxylated trimethylolpropane tri(meth)acrylate, tripropylene glycol di(meth)acrylate, trimethylolpropane tri(meth)acrylate, diethylene glycol di(meth)acrylate, pentaerythritol tetra(meth)acrylate, pentaerythritol tri(meth)acrylate, dipentaerythritol hexa(meth)acrylate, 1,6-hexanediol di(meth)acrylate, and neopentyl glycol di(meth)acrylate.

36. The method of claim 33 wherein the radiation curable binder comprises a repeating group selected from pentaerythritol tetra(meth)acrylate and pentaerythritol tri(meth)acrylate.

37. The method of claim 33 wherein the radiation curable binder comprises acrylate and methacrylate oligomers derived from low-molecular weight polyester resin, polyether resin, acrylic resin, epoxy resin, polyurethane resin.

38. The method of claim 33 wherein the radiation curable binder comprises a urethane acrylate containing compound.

39. The method of claim 33 wherein the radiation curable binder comprises an aliphatic urethane acrylate derived from isophorone diisocyanate.

40. The method of claim 33 wherein the radiation curable binder comprises a polyurethane acrylate derived from an aliphatic polyester polyol.

41. The method of claim 33 wherein the particles comprise organically modified clay particles.

42. The method of claim 33 wherein the particles have an average size of between 2 and 10 micrometers.

43. The method of claim 33 wherein said particles are present in an amount of at least 2% by dry weight of the layer.

44. The method of claim 33 wherein said particles are present in an amount of less than 50% by dry weight of the layer.

45. An LCD display comprising the optical film of claim 1.

46. An LCD display comprising the optical film of claim 27.

47. A touch screen display comprising the optical film of claim 1.

48. A touch screen display comprising the optical film of claim 27.